WILLIAM KENNY ASSOCIATES
LANDSCAPE ARCHITECTURE ▪ ECOLOGICAL SERVICES

June 10, 2021

Mr. Neil Tod Hauck, AIA, LEED AP
Neil Hauck Architects LLC
859 Post Road
Darien, CT 06820

Re: Wetland and Watercourse Delineation
31 Hancock Lane, Darien, Connecticut

Dear Mr. Hauck:

As requested, we visited the referenced property to determine the presence or absence of wetlands and/or watercourses, to demarcate (flag) the boundaries of wetlands and watercourses identified, and to identify onsite soil types. This letter includes the methods and results of our investigation, which we completed today, June 10, 2021. In summary, one inland wetland and watercourse system was identified and delineated. The system, which extends and flows north to south bisecting the central portion of the property, is a segment of Stony Brook with a fringe of lawn and woodland wetland.

Regulatory Definitions

The Inland Wetlands and Watercourses Act (Connecticut General Statutes §22a-38) defines inland wetlands as "land, including submerged land...which consists of any soil types designated as poorly drained, very poorly drained, alluvial, and floodplain." Watercourses are defined in the act as "rivers, streams, brooks, waterways, lakes, ponds, marshes, swamps, bogs and all other bodies of water, natural or artificial, vernal or intermittent, public or private, which are contained within, flow through or border upon the state or any portion thereof." The Act defines Intermittent Watercourses as having a defined permanent channel and bank and the occurrence of two or more of the following characteristics: A) evidence of scour or deposits of recent alluvium or detritus, B) the presence of standing or flowing water for a duration longer than a particular storm incident, and C) the presence of hydrophytic vegetation.

Methodology

A second order soil survey in accordance with the principles and practices noted in the USDA publication *Soil Survey Manual* (1993) was completed at the subject site. The classification system of the National Cooperative Soil Survey was used in this investigation. Soil map units identified at the project site generally correspond to those included in the *Soil Survey of the State of Connecticut* (USDA 2005).

Wetland determinations were completed based on the presence of poorly drained, very poorly drained, alluvial, or floodplain soils. Soil types were identified by observation of soil morphology (soil texture,

1899 Bronson Road
Fairfield CT 06824
203 366 0588
www.wkassociates.net

color, structure, etc.). To observe the morphology of the property's soils, test pits and/or borings (maximum depth of two feet) were completed at the site.

Intermittent watercourse determinations were made based on the presence of a defined permanent channel and bank and the occurrence of two or more of the following characteristics: A) evidence of scour or deposits of recent alluvium or detritus, B) the presence of standing or flowing water for a duration longer than a particular storm incident, and C) the presence of hydrophytic vegetation.

Unless noted otherwise, wetland boundaries were demarcated (flagged) with pink surveyor's tape (hung from vegetation) or small flags (on wire stakes) labeled "William Kenny Associates" that are generally spaced a maximum of every 50 feet. Complete boundaries are located along the lines that connect these sequentially numbered flags. The wetland boundaries are subject to change until adopted by local, state, or federal regulatory agencies.

Results

The approximate 1.5-acre residential property is located at 31 Hancock Lane in Darien, Connecticut. 31 Hancock Lane borders the southern property boundary. Property improvements include a single-family residence, a detached garage, an in-ground pool and a gravel driveway. The vegetative cover at the property is primarily lawn with other ornamentals and some shade trees. A broadleaved deciduous woodland is present in the northeastern portion of the property.

One inland wetland and watercourse system was identified and delineated. The system, which extends and flows north to south bisecting the central portion of the property, is a segment of Stony Brook with a fringe of lawn and woodland wetland. Wetland soils are primarily poorly drained and formed from glacial till deposits or formed from alluvial deposits. The approximate location of the system is shown on the attached map. Portions of the boundary of the system were marked at the site with flags numbered 1 to 8, 10 to 15, 20 to 28 and 30 to 32. Stone walls clearly mark the remaining segments of the boundary. As such, no flags were placed to mark these boundary segments.

Six soil map units were identified on the property (two wetland and four upland). Each map unit represents a specific area on the landscape and consists of one or more soils for which the unit is named. Other soils (inclusions that are generally too small to be delineated separately) may account for 10 to 15 percent of each map unit. The mapped units are identified in the following table by name and symbol and typical characteristics (parent material, drainage class, high water table, depth to bedrock, and slope). These characteristics are generally the primary characteristics to be considered in land use planning and management. A description of each characteristic and their land use implications follows the table. A complete description of each soil map unit can be found in the *Soil Survey of the State of Connecticut* (USDA 2005), and at *https://soilseries.sc.egov.usda.gov/osdname.aspx.* On the day of the review, the upland soil was moist and the wetland soil was wet to inundated. The sky was clear and air temperatures were in the 70's ^{o} F.

Map Unit Sym.	Map Unit Name	Parent Material	Slope (%)	Drainage Class	High Water Table Depth (ft)	High Water Table Kind	High Water Table Mos.	Depth To Bedrock (in)
Upland Soil								
21	Ninigret and Tisbury soils	Glacial Outwash	0-8	Moderately Well Drained	1.5-3.5	Apparent	Nov-Apr	>60
50	Sutton fine sandy loam	Loose Glacial Till	3-8	Moderately Well Drained	1.5-3.5	Apparent	Nov-Apr	>60
60	Canton and	Loose Glacial Till	0-15	Well Drained	>6.0	--	--	>60
	Charlton soils	Loose Glacial Till	0-15	Well Drained	>6.0	--	--	>60
308	Udorthents, Smoothed	Excavated or Filled Soil (>2 feet)	0-45	Well Drained to Somewhat Poorly Drained	1.5->6.0	Apparent	Nov-May	>60
Wetland Soil								
3	Ridgebury	Compact Glacial Till	0-8	Poorly Drained	0.0-1.5	Perched	Nov-May	>60
	Leicester	Loose glacial Till	0-3	Poorly Drained	0.0-1.5	Apparent	Nov-May	>60
	Whitman extremely stony fine sandy loam	Compact Glacial Till	0-3	Very Poorly Drained	0.0-0.5	Perched	Sep-Jun	>60
109	Fluvaquents-Udifluvents complex, frequently flooded	Alluvium	0-3	Poorly Drained	0.0-1.0	Apparent	Oct-May	>60
		Alluvium	0-3	Well Drained	>6.0	--	--	>60

Parent material is the unconsolidated organic and mineral material in which soil forms. Soil inherits characteristics, such as mineralogy and texture, from its parent material. Glacial till is unsorted, nonstratified glacial drift consisting of clay, silt, sand, and boulders transported and deposited by glacial ice. Glacial outwash consists of gravel, sand, and silt, which are commonly stratified and deposited by glacial melt water. Alluvium is material such as sand, silt, or clay, deposited on land by streams. Organic deposits consist of decomposed plant and animal parts.

A soil's texture affects the ease of digging, filling, and compacting and the permeability of a soil. Generally sand and gravel soils, such as outwash soils, have higher permeability rates than most glacial till soils. Soil permeability affects the cost to design and construct subsurface sanitary disposal facilities and, if too slow or too fast, may preclude their use. Outwash soils are generally excellent sources of natural aggregates (sand and gravel) suitable for commercial use, such as construction sub base material. Organic layers in soils can cause movement of structural footings. Compacted glacial till layers make excavating more difficult and may preclude the use of subsurface sanitary disposal systems or increase their design and construction costs if fill material is required.

Generally, soils with steeper slopes increase construction costs, increase the potential for erosion and sedimentation impacts, and reduce the feasibility of locating subsurface sanitary disposal facilities.

Drainage class refers to the frequency and duration of periods of soil saturation or partial saturation during soil formation. Seven classes of natural drainage classes exist. They range from excessively drained, where water is removed from the soil very rapidly, to very poorly drained, where water is removed so slowly that free water remains at or near the soil surface during most of the growing season. Soil drainage affects the type and growth of plants found in an area. When landscaping or gardening, drainage class information can be used to assure that proposed plants are adapted to existing drainage conditions or that necessary alterations to drainage conditions (irrigation or drainage systems) are provided to assure plant survival.

High water table is the highest level of a saturated zone in the soil in most years. The water table can affect the timing of excavations; the ease of excavating, constructing, and grading; and the supporting capacity of the soil. Shallow water tables may preclude the use of subsurface sanitary disposal systems or increase design and construction costs if fill material is required.

The depth to bedrock refers to the depth to fixed rock. Bedrock depth affects the ease and cost of construction, such as digging, filling, compacting, and planting. Shallow depth bedrock may preclude the use of subsurface sanitary disposal systems or increase design and construction costs if fill material is required.

Conclusions

Today, we investigated the property at 31 Hancock Lane in Darien, Connecticut and identified and delineated one inland wetland and watercourse system. Thank you for the opportunity to assist you. If you should have any questions or comments, please do not hesitate to contact us.

Sincerely,

William L. Kenny, PWS, PLA
Soil Scientist

Alexander Wojtkowiak
Soil Scientist

Enclosure

Ref. No. 4902

WILLIAM KENNY ASSOCIATES
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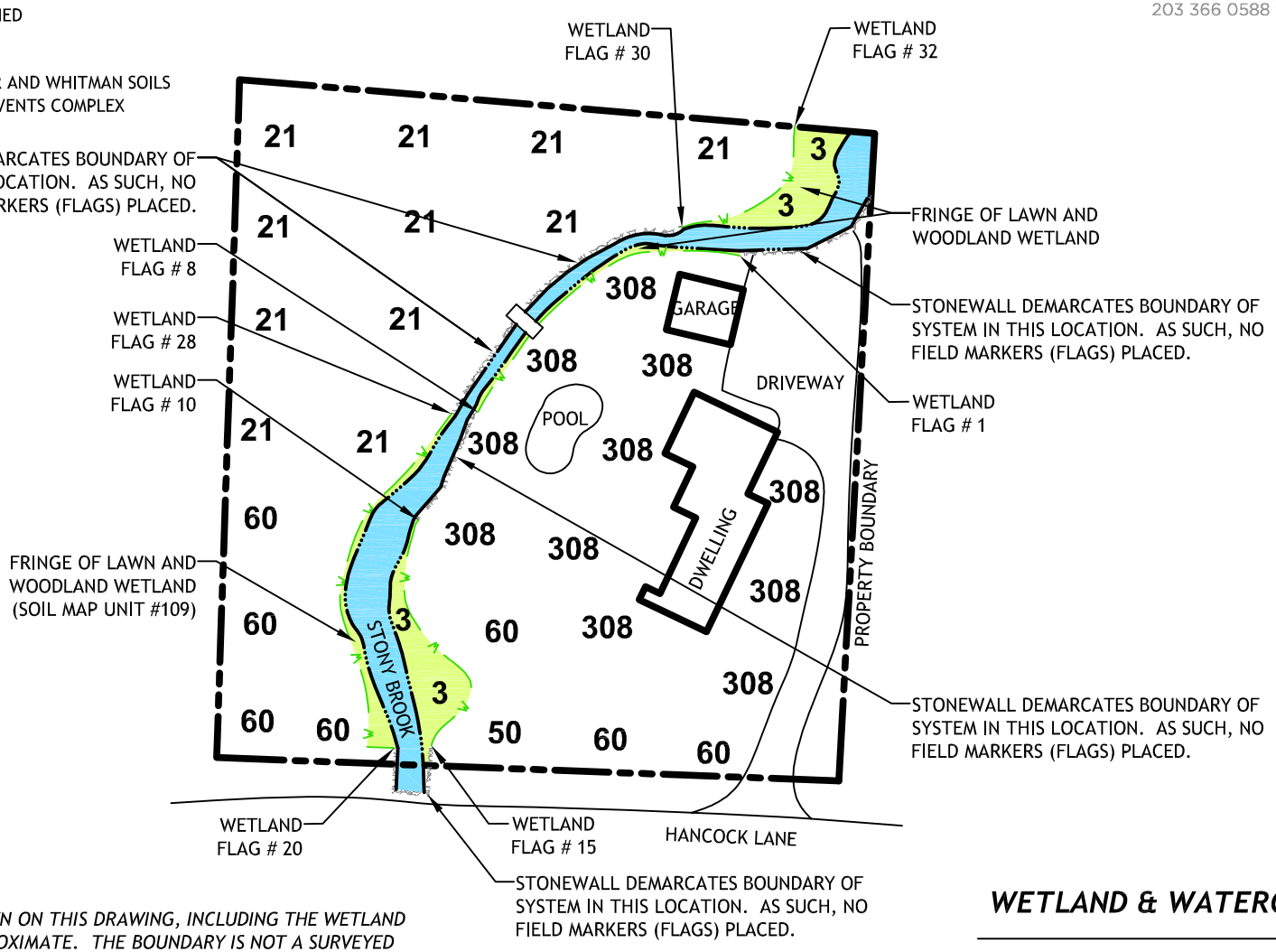
1899 Bronson Road Fairfield CT 06824
203 366 0588 www.wkassociates.net

SOIL LEGEND

UPLAND
21 NINIGRET AND TISBURY SOILS
50 SUTTON FINE SANDY LOAM
60 CANTON AND CHARLTON SOILS
308 UDORTHENTS, SMOOTHED

WETLAND
3 RIDGEBURY, LEICESTER AND WHITMAN SOILS
109 FLUVAQUENTS-UDIFLUVENTS COMPLEX



NOTES:
- *INFORMATION SHOWN ON THIS DRAWING, INCLUDING THE WETLAND BOUNDARY, IS APPROXIMATE. THE BOUNDARY IS NOT A SURVEYED REPRESENTATION OF WHAT WAS FIELD MARKED (FLAGGED).*
- *WETLAND AND SOIL INFORMATION PROVIDED BY WILLIAM KENNY ASSOC. OTHER INFORMATION TAKEN FROM A DRAWING PREPARED BY REDNISS & MEAD, INC.*
- ***21, 50, 60, 308, 3** AND **109** ARE SOIL MAPPING UNIT SYMBOLS. SEE WETLAND DELINEATION REPORT FOR THE SOIL MAP UNIT NAMES AND ADDITIONAL RELATED INFORMATION.*

I CERTIFY THAT THIS WETLAND MAP SUBSTANTIALLY REPRESENTS THE SOILS AND WETLANDS MAPPED IN THE FIELD

WILLIAM L. KENNY, SOIL SCIENTIST

WETLAND & WATERCOURSE MAP

31 HANCOCK LANE
DARIEN, CONNECTICUT

SCALE: NOT TO SCALE
DATE: JUNE 10, 2021

Ref. No. 4902

NORTH